

FRESH-AIR LABORATORY OVEN FT 6060 WITH EXPLOSION-PROTECTED CHAMBER

Unlimited security for your laboratory





The chemical and pharmaceutical industries, the dyestuff, varnish, lacquer and paint industries, the process manufacturing sector and a large number of other industries are dependent on heat treatment processes, in which combustible solvents are released, which can produce potentially explosive mixtures when they come into contact with air. We have developed a new oven specially designed to handle the requirements of these sectors – the FT 6060 fresh-air laboratory oven.

- Designed for solvents of temperature classes T1, T2, T3 and T4
- Unrestricted quantities of solvent
- Nominal temperature up to 105 °C
- Straightforward operation thanks to clearly arranged operator control elements

The FT 6060 prevents the build-up of hazardous conditions during heat treatment and the associated danger to the operating personnel and equipment.

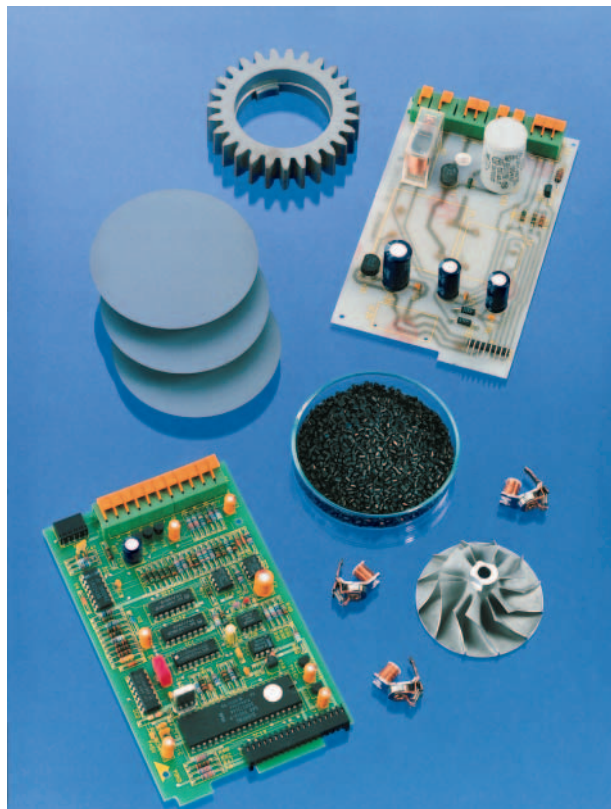
Unlike other ovens currently available on the market, which are only capable of handling limited amounts of solvent, the solvent-processing capacity of the FT 6060 knows no limits. This means that the FT 6060 offers a much higher degree of safety in day-to-day routine operations.

Wide range of possible applications

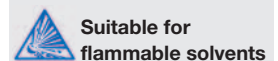
The FT 6060 can be installed in all research, development and application laboratories where combustible solvents of temperature classes T1, T2, T3 and T4 as well as explosion classes IIA and IIB are used, or where such solvents are released in unknown quantities when material is being dried.

The dangers involved in the various applications are frequently underestimated or are simply unknown. Every laboratory should attach particular importance to checking the safety precautions implemented for the respective application. The FT 6060 covers a wide range of danger classes comfortably and therefore offers an ideal solution for all hazardous applications.

The straightforward arrangement of the control elements in the switching unit enables particularly safe and easy operation.



The FT 6060 has been designed for the heat treatment of finished or semifinished products in a wide range of industrial sectors, e.g. electrical engineering and the chemical and pharmaceutical industries.



THE SAFETY CONCEPT OF THE FT 6060

The FT 6060 prevents the simultaneous occurrence of the four conditions required to produce an explosion (refer to "Assessment of the explosion hazard").

The surface temperature in the inner chamber of the heating cabinet has been dimensioned according to the maximum permitted temperature limit for the respective temperature class, which means that explosion protection is guaranteed even in the event of a fault.

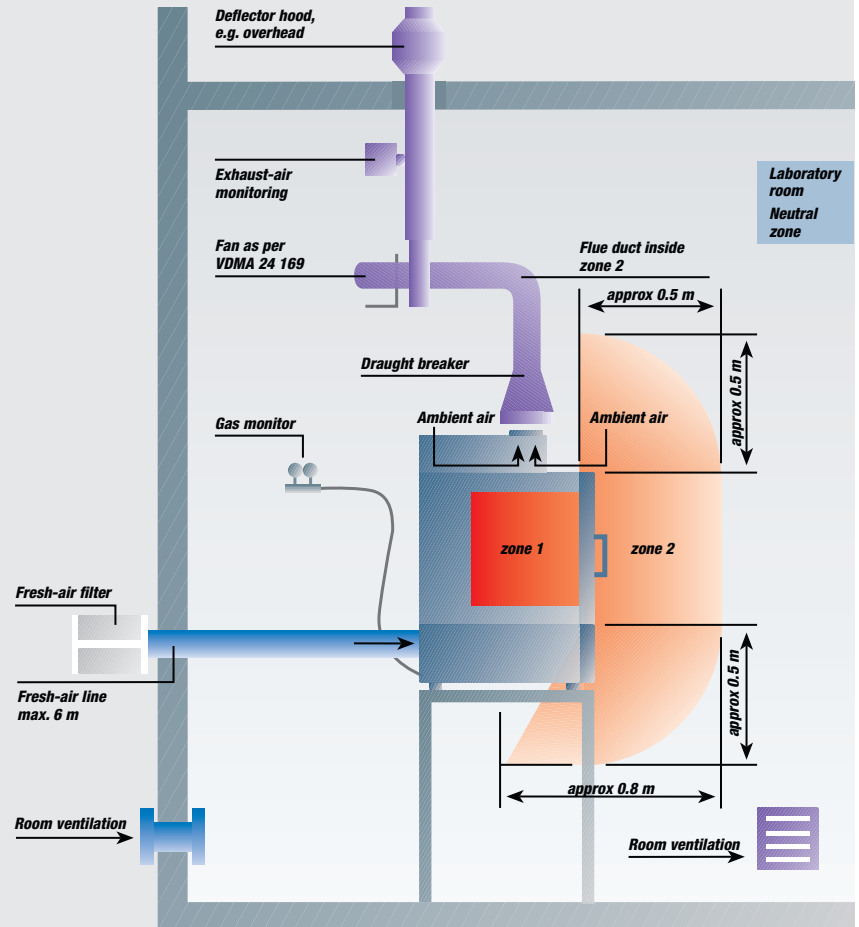
In addition to this, there is a continuous current of fresh air flowing through the cabinet, so that the released solvent vapours are carried away immediately.

If the fan breaks down, the heating circuit is interrupted and the connection between the inner chamber and the heater area is flushed with inert gas or compressed air, precluding any danger from the oven.

Safety you can rely on

The many years of experience we have gathered in the development and manufacture of explosion-protected ovens has taught us the most important aspects in this field. The use of top-quality components and an automatic control circuit, which has been designed for maximum safety, guarantee safe operation of the FT 6060 fresh-air oven. All explosion-protection measures have been tested and certified for compliance with the safety requirements. Every oven is subjected to a routine test.

Installation diagramm



Electrical equipment should not be installed in the vicinity of zone 2 or, if this is unavoidable, such equipment must comply with DIN VDE 0165.

ACCESSORIES

- **Exhaust-air monitoring** – to monitor the exhaust-air flow volume in the extraction system
- **Draught breaker** – to prevent problems in the air-flow and ventilation conditions in the oven
- **Fan (exhaust air)** – for the extraction of solvent vapours
- **Fresh-air filter** – filters the incoming fresh-air supply
- **Support frame**

ASSESSMENT OF THE EXPLOSION HAZARD

Under atmospheric conditions, explosions with dangerous consequences can only occur when four conditions have been fulfilled:

- the concentration of combustible substance in the air is within the explosion limits,
- there is a dangerous amount of an explosive atmosphere,
- the combustible substance demonstrates a high degree of dispersion (vapours, mist, dust),
- there is an effective ignition source.

Basic principles for an assessment of the scope of the protective measures required

According to VDE 0100 Part 720 potentially explosive areas are divided into 3 danger zones according to the probability of a dangerous, potentially explosive atmosphere, as the basis for an assessment of the scope of the necessary protective measures:

Zone 0:

Areas in which gases, vapours or mist produce a dangerous, potentially explosive atmosphere all the time or over a long period. This category only usually includes the areas inside containers or tanks, e.g. immersion baths, where explosive vapours are constantly produced on the surface when in use.

Zone 1:

Areas in which gases, vapours or mist can be expected to produce a dangerous atmosphere occasionally. The inner chamber of the oven and the surrounding area may belong to this category.

Zone 2:

Areas in which gases, vapours or mist can only be expected to produce a dangerous, potentially explosive atmosphere rarely and then only for a brief period. The risk of danger is much smaller than Zone 1.

The clearly arranged operator control elements enable safe, uncomplicated operation of the FT 6060.



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Temperature classes	T1	T2	T3	T4	T5	T6
Maximum surface temperatures	450 °C	300 °C	200 °C	135 °C	100 °C	85 °C
Temperature limit	360 °C	240 °C	160 °C	108 °C	80 °C	68 °C
Example of solvents	acetone benzene toluol	ethyl alcohol i-amyl acetate n-butyl acetate	benzene kerosene n-hexane	acetaldehyde ethyl ether		
Maximum application temperature of the FT 6060	105 °C	105 °C	105 °C	70 °C	-	-

Other items of equipment which can be used to heat materials that contain combustible solvents

OVENS FOR LIMITED QUANTITIES OF SOLVENT

LUT 6050

Heraeus oven for coating materials, designed for laboratory installation, with a restriction on the maximum quantity of solvent. Nominal temperature up to 250 °C, 105 liter capacity.

LUT 6050 F

Heraeus oven for coating materials, designed for installation in operating areas subject to fire hazards, with a restriction on the maximum quantity of solvent. Nominal temperature up to 250 °C, 105 liter capacity.



OVENS WITHOUT A RESTRICTION ON THE MAXIMUM QUANTITY OF SOLVENT

Heraeus VT 6060 M-BL and VT 6130 M-BL

Laboratory vacuum drying oven, jacket-heated, with supplementary explosion-protection equipment for the inner chamber, designed for laboratory installation, without a restriction on the maximum quantity of solvent. Nominal temperature up to 200 °C, 53 or 128 liter capacity.

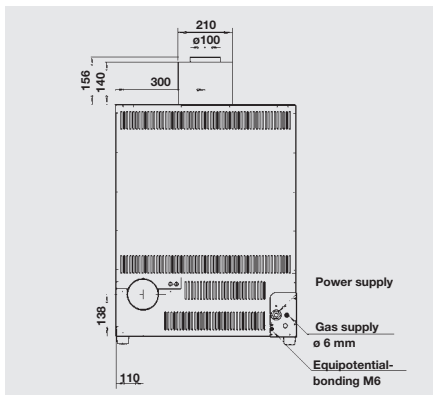
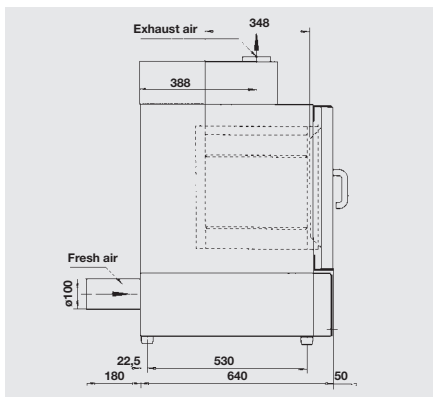
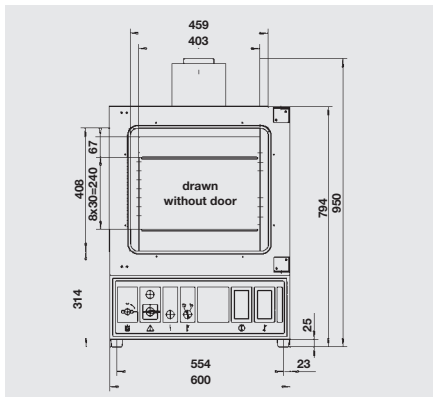
Heraeus VT 6060 P-BL and VT 6130 P-BL

Laboratory vacuum drying oven, shelf-heated, with supplementary explosion-protection equipment for the inner chamber, designed for laboratory installation, without a restriction on the maximum quantity of solvent. Nominal temperature up to 300 °C, 53 or 128 liter capacity.



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TECHNICAL DATA



Solvents of temperature class			T1–T4
Outside dimensions (housing)	(W/H/D)	mm	600/794/640
Chamber volume		l	52
Chamber dimensions	(W/H/D)	mm	403/380/339
Number of shelves			2
	standard		
	maximum		9
Shelf dimensions	(W/D)	mm	387/335
Maximum load			
	per shelf	kg	15
	total	kg	30
Empty weight		kg	92
Operating temperature			
from room temperature +5 °C to		°C	105
Temperature deviation at 105 °C			
(as per DIN 12880, Part 2)	spatial	± °C	3
	temporal	± °C	0.5
Warm-up time to nominal temperature		min	50
Heat Radiation to the surrounding areas		kW	1.3
Volume Flow		m³/h	35
Gas supply			
Type of gas			Inert gas or compressed air
Input pressure		bar	1
Electrical data (rating)			
Operating voltage		V	230, 1/PE AC
Frequency		Hz	50
Connected load		kVA	1.46

All quoted values are typical values measured for standard models and are subject to slight fluctuations.

ORDER-NUMBERS

Unit	Order No.
Basic oven FT 6060	50035800
FT 6060 with door window	50045803

Accessories	Order No.
Exhaust-air monitoring	50041302
Draught breaker	50041374
Fan (exhaust air)	50043015
Fresh-air filter	50028869
Vilton door seal	50027747
Shelf set (1 shelf, 2 supports)	50029413
Support frame, 780 mm in height	50045014

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